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USAMERDC ltr, 23 Aug 1971

AD _____

RDT&E PROJECT NO. _____

USATECOM PROJECT NO. 7-8-0961-01

INITIAL PRODUCTION TEST OF
PUMP, CENTRIFUGAL, 600-GPM.

FINAL LETTER REPORT.

54 p.

U S ARMY
GENERAL EQUIPMENT TEST ACTIVITY
FORT LEE, VIRGINIA

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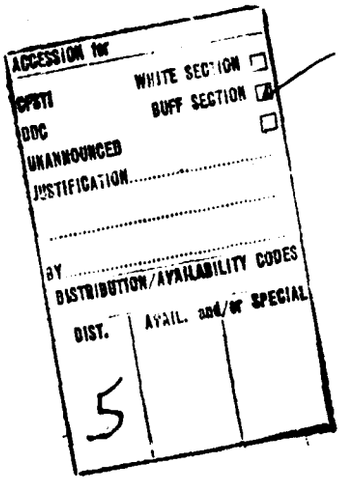

DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY TEST AND EVALUATION COMMAND
ABERDEEN PROVING GROUND, MARYLAND 21005

AMSTE-GE

14 MAR 1969

SUBJECT: Final Report of Initial Production Test of Pump, Centrifugal, 600-GPM, USATECOM Project No. 7-8-0961-01

Commanding General
U. S. Army Mobility Equipment Command
ATTN: AMSME-QRT
4300 Goodfellow Boulevard
St. Louis, Missouri 63120

1. Reference letter, STEGE-SS-T, USAGETA, 16 October 1968, subject: "Interim Letter Report, Initial Production (Specification Requirements) Test of Pump, Centrifugal, 600-GPM, GED, 4-Inch, Wheel-Mounted, USATECOM Project No. 7-8-0961-01."

2. Subject report is furnished for information and necessary action. (Incl 1)

3. The test item is a centrifugal, single-stage, integral self-priming water pump. The item is wheel-mounted, provided with a military standard gasoline engine, and has a rated capacity of 600 GPM. The initial production test was conducted by U. S. Army General Equipment Test Activity at Fort Lee, Va., and Fort Story, Va., during the period 21 August 1968 through 20 January 1969. The results of the tests to determine conformance to the initial production requirements of the specification were reported by referenced letter report. Inclosure 1 reports the results of all tests conducted by USATECOM on the 600-GPM pump.

4. Results of the initial production test are as follows:

a. The item failed to meet applicable tests of the specification in the following respects.

(1)

(1) Change 1 to the TM 5-2805-204-14 which is applicable to the Model 4-A084-III standard military engine of the test item was not furnished with the equipment. It is essential that the engine technical manual incorporating Change 1 be issued with the equipment. No evaluation of the manual is required since this is a standard technical manual.

(2) During the fuel tank pressure test with an internal tank pressure of not less than 5 psi and the top of the tank immersed 12 inches below the surface of the water, no evidence of leakage from the tank was noted. However, minimal fuel vapor leakage from the engine fuel tank vent valve was noted. No corrective action is required since the military specification was met in that the fuel tank did not leak during the test under the test conditions as outlined in the military specification.

(3) Two electrical tachometer failures occurred during the test. The tachometer on test item H-2283 was found to be inoperative when the test was initiated. The tachometer on test item H-2283 failed after 230 hours of test operation. The use of a mechanical rather than electrical tachometer should be investigated. This problem is classified as a shortcoming, as outlined in Appendix I of subject report.

b. One deficiency was reported during the operational test. The maintenance instructions for wiring are not compatible with the actual wiring of the control panel. The condition has been downgraded by this headquarters to a shortcoming, since the wiring harness is not complex and is color coded. These factors minimize the chance of maintenance error in trouble shooting by qualified personnel, even though some difficulty may be encountered. However, it is highly desirable that the wiring diagram discrepancy be corrected to improve maintainability of the item.

c. Ten other shortcomings were reported in Appendix I, subject report. Considering the deficiency regraded as a shortcoming as stated in paragraph 4b above, there are a total of eleven shortcomings remaining.

d. The test item demonstrated a reliability of 90 per cent at a confidence level of .90 (Appendix III-B of subject report).

14 MAR 1969

AMSTE-GE

SUBJECT: Final Report of Initial Production Test of Pump, Centrifugal, 600-GPM, USATECOM Project No. 7-8-0961-01

5. The pump was adequately maintainable. Exceptions were the discrepancy in the wiring diagram, paragraph 4b above, and the lack of maintenance instructions, as relate to flushing and inspection of the intermediate housing when abrasive liquids are pumped.

6. It is concluded that:

a. The pump, centrifugal, 600-GPM is suitable for issue;

b. The item is adequately maintainable and reliable.

7. It is recommended that:

a. As many as possible of the shortcomings be corrected.

b. The maintenance and overhaul manual incorporate suggested changes, as indicated in Appendix IV of subject report.

c. Change 1 to TM 5-2805-204-14, which is applicable to the Model 4-A084-III standard military engine, be issued with the subject item.

FOR THE COMMANDER:

WILLIAM H. HUBBARD
Colonel, GS
Deputy Chief of Staff

1 Incl
Final Rept (1 cy)

DEPARTMENT OF THE ARMY
U.S. ARMY GENERAL EQUIPMENT TEST ACTIVITY
FORT LEE, VIRGINIA 23801

STEGE-TE-S 14 February 1969

SUBJECT: Final Letter Report of Initial Production Test of Pump, Centrifugal, 600-GPM, USATECOM Project No. 7-8-0961-01

Commanding General
U.S. Army Test and Evaluation Command
ATTN: AMSTE-GE
Aberdeen Proving Ground, Maryland 21005

1. References are as follows:

a. STE Form 1028, AMSTE-GE, U.S. Army Test and Evaluation Command, 29 January 1968, subject: "Test Directive for Initial Production Test of Pump, Centrifugal, 600-GPM, USATECOM Project No. 7-8-0961-01."

b. Letter, AMSTE-GE, USATECOM, 4 December 1967, subject: "Planning Directive for Initial Production Test of Pump, Centrifugal, 600-GPM-USATECOM Project No. 7-8-0961-01."

c. Military Specification MIL-P-52474 (MO), 3 August 1966, subject: "Pump, Centrifugal, Water, Gasoline-Engine-Driven, 4-inch, 600-GPM at 50-Feet Total Head."

d. Test Plan, U.S. Army General Equipment Test Activity, dated March 1968, subject: "IPT of Pump, Centrifugal, 600-GPM, Water, GED, 4-Inch, Wheel-Mounted, USATECOM Project No. 7-8-0961-01," with Change 1, dated 12 November 1968.

e. MIL-STD-209B, "Slinging Eyes and Attachments for Lifting and Tying Down Heavy Military Equipment," unclassified, 11 May 1960; Notice 1, 12 June 1963.

f. Letter, STEGE-ET-L, this headquarters, 15 October 1968, subject: "Interim Letter Report, Initial Production (Specification Requirements) Test of Pump, Centrifugal, 600-GPM, Water, GED, 4-Inch, Wheel-Mounted, USATECOM Project No. 7-8-0961-01."

2. IP test of the 600-GPM Water Pump was conducted at Fort Lee and Fort Story, Virginia, during the period 21 August 1968 through 20 January 1969. Plan of test (Ref. d) as changed was followed with no deviations. A total of 750 operational hours were compiled on two test items, 188 of which were accomplished during salt water applications.

3. The test item is considered adequate to meet the specification requirements of Specification MIL-P-52474 (MO) (Ref. c) except as follows:

a. The engine manual furnished with the pumping unit, TM 5-2805-204-14, is not applicable to the Model 4-A084-III standard military engine.

b. The engine fuel tank cap is not suitable to prevent leakage through the vent when the latter is in the closed position (Par. 5e(2), Ref. f).

c. The inoperative tachometer (EPR's No. L7-1, L7-3, and SPECIAL, App. IV) is considered to be directly related to poor quality control inspection procedures at the contractor's plant. See Reference f for detailed findings.

4. The pump performed mission tasks to an acceptable degree. Safe use and handling characteristics were confirmed, and human factors aspects were adequate.

5. The test item was transported by truck over highways and cross-country and by railcar without difficulty; however, the tiedown eyes do not conform to MIL-STD-209B (Ref. e). The tiedown eyes suffered weld fractures and severe bending during the rail impact test (App. II).

6. The test item met reliability requirements (App. III-A and B) as specified in the test plan (Ref. d). Maintainability of the test item (App. I and III – C, D, and E) is not considered adequate until incorrect wiring instructions in the operation maintenance and overhaul manual are corrected (deficiency, EPR L7-14, App. IV). The malfunction of the pump seal

(EPR L7-11, App. IV) is attributed to pumping abrasive liquids. Additional preventive maintenance instructions requiring flushing and inspection of intermediate housing when pumping abrasive liquids will prolong seal life and enable early detection of seal wearout. Liquids to be pumped should be filtered or settled to the maximum practical extent to prevent abrasion of pump impellers, shafts, and seals (EPR L7-15, App. IV).

Howard W. Hembree
HOWARD W. HEMBREE, Ph.D.
Technical Director

C. R. Church
C. R. CHURCH
Colonel, QMC
Commanding

4 Incl
Appendix I - Deficiencies and Shortcomings
Appendix II - Transportability
Appendix III - Maintenance Evaluation
Appendix IV - EPR's

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APPENDIX I. DEFICIENCIES AND SHORTCOMINGS

1. DEFICIENCIES

Deficiency	Suggested Corrective Action	Remarks
1.1 Maintenance instructions for wiring the control panel are inaccurate.	Assemble the control panel wiring in accordance with the maintenance instructions or change the maintenance instructions to correspond to the test item.	EPR L7-14.

2. SHORTCOMINGS

Shortcoming	Suggested Corrective Action	Remarks
2.1 Malfunction of two tachometers.	Convert to mechanical tachometers.	EPR L7-1 EPR L7-3.
2.2 The crankcase breather assembly is not accessible for removal with tools found in the general mechanics tool set (FSN 5180-754-0641) when the engine is hot.	Redesign of the breather assembly to permit removal with a socket wrench on top.	EPR L7-2.
2.3 Malunction of choke solenoid #13206-E0809.	Remove electrical type choke and use the hand choke only; or change to a thermostatic type choke commonly used in automobiles.	EPR L7-4.
2.4 Loss of anchor lock pin.	Use a standard split key ring in place of the ring furnished with the test item.	EPR L7-5. The furnished rings had their openings closed only with friction tape, which deteriorated with time and use.

APPENDIX I

Shortcoming	Suggested Corrective Action	Remarks
2.5 During the rail car hump test, the 4 tiedown eyes bent and 5 of the 8 welds securing the eyes to the pump frame fractured.	Increase diameter of the 1/2" bar tiedown eyes and weld bars to frame on both sides of frame channel flange.	EPR L7-6.
2.6 Temporary malfunction of the electrical system was caused by the tachometer wire being pinched between the top cover and lower shroud of the engine.	Provide an opening in the lower engine shroud to permit the wire leading to the tachometer sending unit to pass through without being pinched by the engine cover.	EPR L7-7. EPR referenced only the tachometer; actually, entire electrical system was affected momentarily.
2.7 Malfunction of the magneto serial #5805606; center carbon worn out, contact point set plate (82796 22437H) loose.	Improve quality control of magneto assembly by the manufacturer.	EPR L7-8. Reclassified from a deficiency to a shortcoming because reliability of magneto was verified after extending test hours from 438 to 750 hours.
2.8 Malfunction of the engine starter motor.	Additional protection for salt water pumping operations should be provided for the starter motor.	EPR L7-9 EPR L7-9s.
2.9 Premature wearout of the pump seal (A004-M36).	Additional preventive maintenance instructions requiring flushing and inspection of intermediate housing when pumping abrasive liquids will prolong seal life and enable early detection of seal wearout.	EPR L7-11. Reclassified from a deficiency to a shortcoming because of additional analysis. Failure of pump seal caused damage to following items: 1. A010-M36 gasket. 2. A907-M36 shim set. 3. A009-M36 plate seal 4. A003-M36 sleeve shaft. 5. A100-M36 inter. assembly.

Shortcoming	Suggested Corrective Action	Remarks
		6. FSN 2920-882-3401 motor starter. 7. 97403-13213E3286 solenoid starter motor.
2.10 Prior to operation, the priming plug A-909-M36 was broken during removal to prime the pump. The entire wrench area of the plug twisted off, leaving an opening into the pump housing.	Use the same material in the plug and casing.	EPR L7-13.

APPENDIX II. TRANSPORTABILITY

1. Highway

a. The pump, packaged in a wooden crate, was shipped by commercial truck to Fort Lee, Virginia, a distance of 690 miles, with no damage resulting.

b. At Fort Lee, the uncrated, wheel-mounted pump was located onto a truck, cargo, 2 1/2-ton, 6x6, M35, for highway testing (Fig. 1). A standard commercial 2-ton forklift was used for the loading. The test item was also lifted with a 5-ton wrecker, M62, in order to test the lifting eye. The truck-mounted pump was then blocked and tied down as shown in Figure 2. No difficulty was encountered in loading the pump unit aboard the M35 truck by three men and a forklift in 10 minutes. The item was blocked and tied down in the truck bed without difficulty.

c. The test item was transported 114 miles on concrete and blacktop highways between test sites at Fort Lee and Camp Pickett, Virginia, and was subjected to emergency stopping tests at 10, 20, 30 and 45 mph with no damage occurring. During the stopping test, impact registers were mounted on the pump frame and on the truck bed to measure the stopping forces in the longitudinal, transverse, and vertical directions. Stopping distances were obtained by using a gun-type detonator marking device wired to the stoplight circuit of the truck and then measuring the distance with a steel tape. The directions and magnitudes of the stopping forces are recorded in Table I.

2. Cross-Country

The pump unit, mounted on the truck, cargo, 2 1/2-ton, 6x6, M35 and secured as described for the highway test, was transported 153 miles cross-country over rough terrain at Camp Pickett, Virginia, at an average speed of 10 mph without difficulty.

3. Rail

a. At Fort Lee, Virginia, the test item was towed onto a concrete loading ramp and then loaded onto a USAX 50-ton capacity, military standard domestic service flatcar equipped with AAR couplers at both ends. A 1 1/4-inch-wide 16-gage steel band was run through the trailer tongue eye and attached at each end by a 2x4x1/8-inch plate nailed to car deck with 8 3/16-inch diameter by 1 3/4-inch-long screw nails (Fig. 3). The test item was loaded and centered on the flatcar by two men in 15 minutes. Five men required 1 hour 30 minutes to chock and tie down the unit.

APPENDIX II

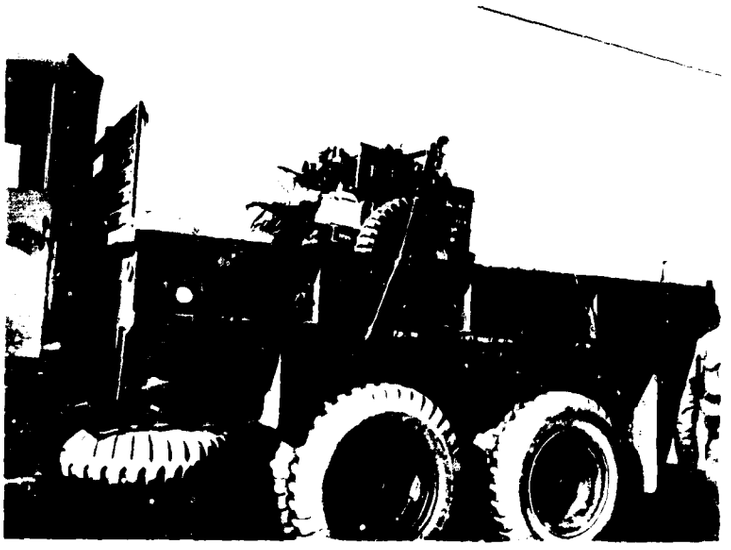


Figure 1. 600-GPM pump, trailer-mounted, loaded on truck for highway and cross-country testing.

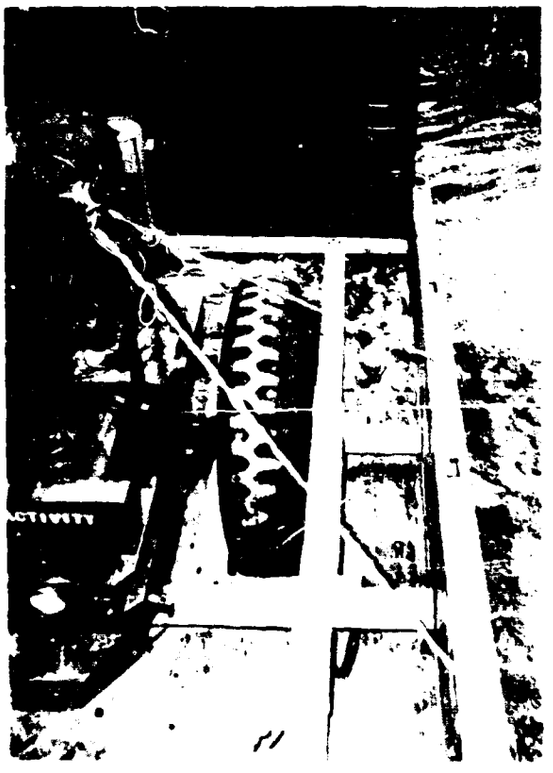


Figure 2. Pump unit blocked and tied down on truck bed.

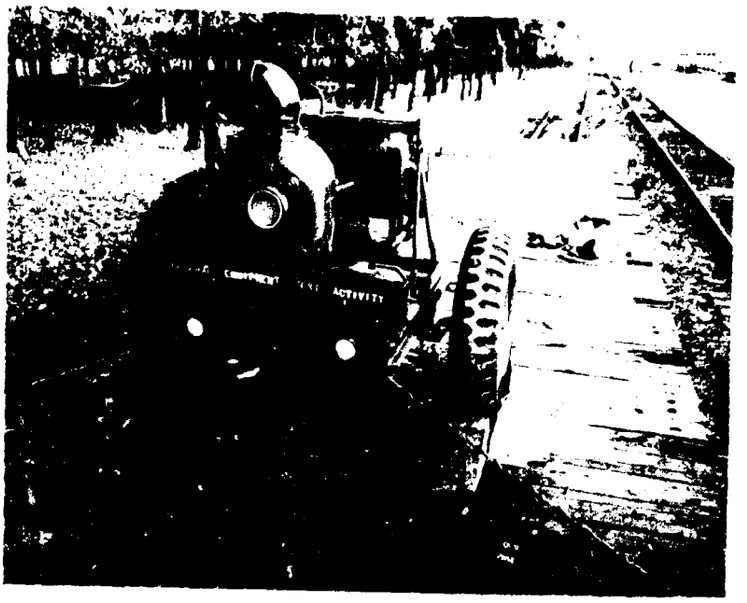


Figure 3. Pump unit chocked and tied down for rail impact test.

Figure 4. Tiedown eye after rail impact test with fractured weld and bent eye.

APPENDIX II

b. Rail impact tests were conducted in accordance with AAR recommendations. Six empty flatcars having a total weight of 305,000 pounds were coupled together with the brakes set. Accelerometers were installed on the frame of the pump unit and on the deck of the test flatcar. Impacts were made at 4.18, 6.31, and 8.54 mph in the forward direction and 8.02 mph in the reverse direction. During the impact testing, the four tiedown eyes became permanently bent (Fig. 4) [illegible]imum deflection at the bottom of the "U"-shaped eyes was 1 1/2 inche[illegible]. Five of the eight welds, attaching the eyes to the pump frame, were fractured. Bending of the eyes caused the wires to become loose. The chocking and bracing did not suffer any damage. The direction and magnitude of impact forces and location of accelerometers are shown in Table II.

c. The test item, mounted on the flatcar with a deck height of 43 1/2 inches from the top of rail, without difficulty passed through the clearance device consisting of clearance diagrams of the AAR Standard, the International Universal Gage, and the Foreign Service Military Standard.

4. Lifting and Tiedown Attachments. The lifting and tiedown attachments did not meet the requirements of MIL-STD-209B (Table III).

TABLE I

EMERGENCY STOPPING TEST DATA

PUMP UNIT MOUNTED ON TRUCK, CARGO, 2 1/2 TON, 6x6, M35

Run No.	Speed (MPH)	Max "G" Force Readings on Impact Register Tapes						Stopping Distance (Feet)
		Mounted on Truck			Mounted on Pump			
		Vert	Lat	Long	Vert	Lat	Long	
1	10	0.2	0.6	0.8	0.2	0.6	0.8	8.6
2	10	0.2	0.6	0.8	0.2	0.6	0.8	9.6
3	10	0.4	0.6	0.8	0.2	0.6	0.8	9.8
4	20	0.2	0.6	0.6	0.2	0.6	0.8	22.7
5	20	0.2	0.6	0.6	0.2	0.6	0.8	24.8
6	20	0.4	0.6	0.8	0.6	0.6	0.8	24.8
7	30	0.2	0.6	0.8	0.2	0.6	0.8	55.3
8	30	0.6	0.6	0.6	0.6	0.8	0.8	51.3
9	30	0.2	0.6	0.6	0.2	0.6	0.8	45.8
10	40	0.2	0.6	0.8	0.4	0.6	0.8	95.4
11	45	0.2	0.6	0.6	0.4	0.6	0.8	108.3
12	45	0.2	0.6	0.6	0.4	0.6	0.8	107.5

APPENDIX II

TABLE II

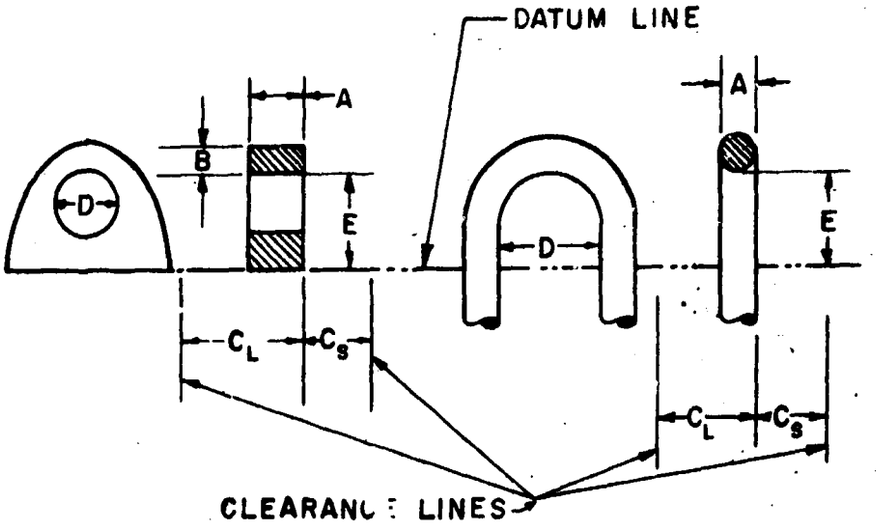
SUMMARY OF MAXIMUM "G" FORCES FOR IMPACT TEST ON FLATCAR

Run No.	Direction of Hump	Actual Car Speed (MPH)	Accelerometer Mounting Location						Buffer Car Movement (Inches)
			Flatcar			Pump Frame			
			Vert	Lat	Long	Vert	Lat	Long	
1	Fwd	4.18	2.1	0.7	4.1	3.4	1.0	3.6	3
2	Fwd	6.31	3.6	1.1	6.4	2.7	1.9	3.7	7
3	Fwd	8.54	6.6	1.9	12.4	2.7	1.1	6.4	13
4	Reverse	8.02	7.4	2.0	15.9	3.9	1.4	5.4	6

APPENDIX II

TABLE III

COMPARISON OF DIMENSIONS OF LIFTING AND TIEDOWN EYES
(Dimensions are in inches)



	Weight Range (Long Ton 2240 lbs)	Restricting Points									
		A		B		C_L[a]	C_S[a]	D		E	
		Max	Min	Max	Min	Min	Min	Max	Min	Max	Min
MIL-STD-209B Type III Class I	1-10	1	3/4	1	3/4	7	3	3½	3	5	3
Lifting Eye (Only one provided)	1	½				No Rest	8¼	3		3 5/8	
Tiedown Eyes (4 provided)	1	½				No Rest	16	2¼		1 5/8	

[a]There shall be no interference with C_L and C_S which could interfere with engaging a shackle and pin in the eyes.

APPENDIX III. MAINTENANCE EVALUATION

APPENDIX III-A

MAINTAINABILITY, RELIABILITY, AND AVAILABILITY SYMBOLS

The symbols listed below will be used as variables in the computations in Appendix III-B.

$R_L(x; 1-\alpha$	=	The lower confidence limit on reliability
$\chi^2_{1-\alpha\ 2r+2}$	=	Chi-square value for a confidence level of 100 $(1-\alpha)$ % and $2r+2$ degrees of freedom
x	=	Mission time
$1-\alpha$	=	Confidence coefficient
MTBF	=	Mean time between failures
MDT	=	Mean downtime
MTTR	=	Mean time to repair (failures)
$\bar{M}$	=	Mean active maintenance downtime
MTBM	=	Mean time between maintenance
MR	=	Maintenance ratio
A_i	=	Inherent Availability
A_a	=	Achieved Availability
A_o	=	Operational Availability
b	=	Operating Time (hours, miles, etc.)
c	=	Active maintenance man-hours (scheduled and unscheduled)
d	=	Active maintenance clock hours (scheduled and unscheduled)
f	=	Unscheduled active maintenance clock hours
g	=	Downtime in hours (include active and inactive maintenance time for both scheduled and unscheduled maintenance actions)
r	=	Number of failures
s	=	Number of maintenance layovers (include both scheduled and unscheduled maintenance actions)
p	=	Active maintenance man-hours to correct failures.
q	=	Active maintenance clock hours to correct failures.

APPENDIX III-B

MAINTAINABILITY, RELIABILITY, AND AVAILABILITY COMPUTATIONS

	#2282	#2283	Sample
Mission Time (x)	= 20	20	20
Confidence Level ($1-\alpha$)	= .90	.90	.90
No. of Failures (r)	= 0	1	1
Operating Time (b)	= 150.0	600.0	750.0
Maintenance Man-hours (c)	= 1.7	35.8	37.5
Maintenance Clock hours (d)	= 1.7	32.2	33.9
Unscheduled Maintenance clock hours (f)	= 0.3	13.0	13.3
Downtime (g)	= 1.7	51.8	53.5
No. of Maintenance Layovers (s)	= 3	15	18
Maintenance Man-hours (p)	= 0.0	4.0	4.0
Maintenance Clock hours (q)	= 0.0	4.0	4.0
COMPUTATIONS:			
MDT = (g/s)	= 0.6	3.5	3.0
MTBF = (b/r)	= *	600.0	750.0
$\bar{M}$ = (d/s)	= 0.6	2.1	1.9
MTTR (man-hours) = (p/r)	= *	4.0	4.0
MTTR (clock hours) = (q/r)	= *	4.0	4.0
MTBM = (b/s)	= 50.0	40.0	41.7
MR = (c/b)	= 0.011	0.060	0.050
A_i = (MTBF/(MTBF+MTTR (clock hours)))	= 1.000	.993	.995
A_a = (MTBM/(MTBM+$\bar{M}$))	= .988	.950	.956
A_o = (MTBM/(MTBM+MDT))	= .988	920	.933

RELIABILITY; $R_L(x, 1-\alpha) = \exp\left(-\frac{x\,\chi^2_{1-\alpha,\,2r+2}}{2b}\right) = .90$

* Indeterminable due to division by zero.

APPENDIX III-C

MAINTENANCE AND RELIABILITY ANALYSIS CHART

Scheduled and Unshceduled Maintenance

GROUP NO.	COMPONENT AND RELATED OPERATIONS	MAINT LEVEL C-OPER/CREW O-ORGZN F-DIRECT H-GENERAL		TM INSTRUCTIONS		ACTIVE MAINTENANCE TIME		LIFE H-HOURS M-MILES	REASON PERFORMED	REMARKS
		PRE-SCRIBED	RECOM-MENDED	ADE-QUATE	INADE-QUATE	CLOCK HOURS	MAN-HOURS			
1	2	3	4	5	6	7		8	9	10
0100	Service Engine (Change oil)	C	C	X		0.5	0.5	50	Scd	50-hour service EPR L7-2
0100	Service Engine	C	C	X		0.4	0.4	100	Scd	50-hour service
0100	Service Engine	C	C	X		0.3	0.3	150	Scd	50-hour service
0100	Service Engine	C	C	X		0.3	0.3	200	Scd	50-hour service
0607	Tachometer Replace	0	0		X	2.3	2.3	200	Unscd	Deferred to 250 hours Scd Maint EPR L7-3
0312	Choke Assy Automatic	0	0		X	1.5	1.5	225	Unscd	Deferred to 250 hours Scd Maint EPR L7-4
0100	Quarterly Service	0	0	X		6.7	6.7	250	Scd	Quarterly 250-hour Maintenance
1501	Lock Pin	0	0	X		0.2	0.2	250	Unscd	Lock pin lost EPR L7-5
0100	Service Engine (Change oil)	C	C	X		0.5	0.5	300	Scd	50-hour service

MAINTENANCE AND RELIABILITY ANALYSIS CHART

GROUP NO.	COMPONENT AND RELATED OPERATIONS	MAINT LEVEL (C-OPER/CREW O-ORGZN F-DIRECT H-GENERAL)		TM INSTRUCTIONS		ACTIVE MAINTENANCE TIME		LIFE H-HOURS M-MILES	REASON PERFORMED	REMARKS
		PRE-SCRIBED	RECOM-MENDED	ADE-QUATE	INADE-QUATE	CLOCK HOURS	MAN-HOURS			
1	2	3	4	5	6	7		8	9	10
0605	Magneto	O	F	X		4.0	4.0	316	Unscd	EPR L7-8, Failure
0603	Motor Starter	O	O	X		1.0	1.0	350	Unscd	EPR L7-9 and L7-9s
0100	Service Engine	C	C	X		0.5	0.5	350	Scd	50-hour service
0100	Service Engine	C	C	X		0.5	0.5	400	Scd	50-hour service
0100	Service Engine	C	C	X		0.5	0.5	450	Scd	50-hour service
0100	Service Eng & Pump	O	O	X				500	Scd	250-hour QM service
0312	Auto Choke	O	O	X		0.1	0.1	500	Unscd	Adjust Elec Auto Choke
5501	Pump Seal	F	F	X		1.6	3.2	512	Unscd	EPR L7-11, Failure
0603	Starter	O	O	X		0.3	0.3	512	Unscd	Result of seal malfunction
5501	Primer Plug		F		X	2.0	4.0	512	Unscd	EPR L7-13
0100	Service Engine	C	C	X		0.5		550	Scd	50-hour service
0100	Service Engine	C	C	X		0.5		600	Scd	Final Technical inspection.

APPENDIX III-C

MAINTENANCE AND RELIABILITY ANALYSIS CHART

GROUP NO	COMPONENT AND RELATED OPERATIONS	MAINT LEVEL C-OPER/CREW O-ORGZN F-DIRECT H-GENERAL		TM INSTRUCTIONS		ACTIVE MAINTENANCE TIME		LIFE H-HOURS M-MILES	REASON PERFORMED	REMARKS
		PRE-SCRIBED	RECOM-MENDED	ADE-QUATE	INADE-QUATE	CLOCK HOURS	MAN-HOURS			
1	2	3	4	5	6	7		8	9	10
0100	Service Engine	C	C	X		0.5	0.5	50	Scd	50-hour service
0100	Service Engine	C	C	X		0.4	0.4	110	Scd	50-hour service
5505	Check Valve	O	O	X				110	Unscd	EPR L7-
0607	Control Panel Assembly	O	O	X		0.3	0.3	110	Unscd	EPR L7-1
0100	Service Engine	C	C	X		0.5	0.5	150	Scd	Final Tech. Insp.

APPENDIX III-C

MAINTENANCE AND RELIABILITY ANALYSIS CHART

Simulated and Reviewed Maintenance

GROUP NO.	COMPONENT AND RELATED OPERATIONS	MAINT LEVEL (C-OPER/CREW O-ORGZN F-DIRECT H-GENERAL)		TM INSTRUCTIONS		ACTIVE MAINTENANCE TIME		LIFE H-HOURS M-MILES	REASON PERFORMED	REMARKS
		PRESCRIBED	RECOMMENDED	ADEQUATE	INADEQUATE	CLOCK HOURS	MAN-HOURS			
1	2	3	4	5	6	7		8	9	10
01	ENGINE:									
0100	Engine Assembly									
0100	Engine, Gasoline									
	Inspect	C	C	X		0.1	0.1	"S"	Sim	
	Test	O	O	X		1.0	1.0	"S"	Sim	
	Service	C	C	X		0.5	0.5	"S"	Sim	
	Replace	H	F	X		2.0	4.0	"S"	Sim	
	Overhaul	H	H	X		7.0	14.0	"S"	Sim	
03	FUEL SYSTEM:									
0306	Tanks, lines, Fittings									
0306	Tank									
	Service	O	O	X		0.1	0.1	"S"	Sim	
	Replace	H	O	X		2.0	4.0	"S"	Sim	
	Repair	F	F	X		E 2.0	E 4.0			Reviewed-not performed.
0306	Lines, Fittings									
	Inspect	O	O	X		0.1	0.1	"S"	Sim	
	Replace	O	O	X		0.5	0.5	"S"	Sim	

APPENDIX III-C

MAINTENANCE AND RELIABILITY ANALYSIS CHART

GROUP NO.	COMPONENT AND RELATED OPERATIONS	MAINT LEVEL (C-OPER/CREW O-ORGZN F-DIRECT H-GENERAL) PRE-SCRIBED	MAINT LEVEL RECOM-MENDED	TM INSTRUCTIONS ADE-QUATE	TM INSTRUCTIONS INADE-QUATE	ACTIVE MAINTENANCE TIME CLOCK HOURS	ACTIVE MAINTENANCE TIME MAN-HOURS	LIFE H-HOURS M-MILES	REASON PERFORMED	REMARKS
1	2	3	4	5	6	7		8	9	10
04	EXHAUST SYSTEM									
0401	Muffler and Pipes									
	Replace	O	O	X		0.2	0.2	"S"	Sim	
06	ELECTRICAL SYSTEM									
0607	Control Panel									
	Repair	O	O		X	E 1.0	E 1.0			Reviewed-not performed.
061	Batteries, Storage									
	Inspect	C	C	X		0.1	0.1	"S"	Sim	
	Service	O	O	X		0.2	0.2	"S"	Sim	
	Replace	O	O	X		0.3	0.3	"S"	Sim	
11	REAR AXLE									
1100	Rear Axle Assembly									
	Replace	F	O	X		2.0	4.0	"S"	Sim	
	Repair	O								
12	WHEEL AND TRACKS									

APPENDIX III-C

MAINTENANCE AND RELIABILITY ANALYSIS CHART

GROUP NO.	COMPONENT AND RELATED OPERATIONS	MAINT LEVEL C-OPER/CREW O-ORGZN F-DIRECT H-GENERAL		TM INSTRUCTIONS		ACTIVE MAINTENANCE TIME		LIFE H-HOURS M-MILES	REASON PERFORMED	REMARKS
		PRE-SCRIBED	RECOM-MENDED	ADE-QUATE	INADE-QUATE	CLOCK HOURS	MAN-HOURS			
1	2	3	4	5	6	7		8	9	10
13	Wheel Assy									
	Service	O	O	X		0.1	0.1	"S"	Sim	
	Repair	O	O	X		E 0.5	E 0.5			Reviewed-not performed.
1313	Tires, Tubes									
	Inspect	C	C	X		0.1	0.1	"S"	Sim	
	Service	O	O	X		0.1	0.1	"S"	Sim	
	Repair	O	O	X		0.7	0.7	"S"	Sim	
19	FRAME, TOWING ATTACHMENTS AND DRAWBAR									
1911	Frame									
	Repair	F	F	X		E 2.0	E 2.0			Reviewed-not performed.
1913	Draw Bar									
	Repair	F	F	X		E 1.0	E 1.0			Reviewed-not performed.
	BODY CHASSIS OR HULL AND ACCESSORY ITEMS									
	Inspections									
	[illegible]	C	C	X		0.1	0.1	"S"	Sim	
	[illegible]	[illegible]	[illegible]	X		0.2	0.2	"S"	Sim	

APPENDIX III-C

MAINTENANCE AND RELIABILITY ANALYSIS CHART

GROUP NO.	COMPONENT AND RELATED OPERATIONS	MAINT LEVEL C-OPER/CREW O-ORGZN F-DIRECT H-GENERAL		TM INSTRUCTIONS		ACTIVE MAINTENANCE TIME		LIFE H-HOURS M-MILES	REASON PERFORMED	REMARKS
		PRE-SCRIBED	RECOM-MENDED	ADE-QUATE	INADE-QUATE	CLOCK HOURS	MAN-HOURS			
1	2	3	4	5	6	7		8	9	10
[illegible]	Data Plates									
	Replace	C	O	X		0.2	0.2	"S"	Sim	
[illegible]	PUMPS									
[illegible]	Pump Assembly									
	Inspect	C	C	X		0.1	0.1	"S"	Sim	
	Service	C	C	X		0.1	0.1	"S"	Sim	
	Replace	F	F	X		2.0	4.0	"S"	Sim	
	Repair	F	F	X		E 2.0	E 4.0			Reviewed-not performed.
	Overhaul	H	H	X		2.0	4.0	"S"	Sim	
[illegible]	Shafts, impellers, Bearings, Seals									
	Adjust	F	F	X		0.2	0.2	"S"	Sim	
	Replace	F	F	X		0.2	0.2	"S"	Sim	
	Repair	F	F	X		E 0.5	E 0.5			Reviewed-not performed.
[illegible]	Suction and Discharge Assembly:									
	Install	O	O	X		0.2	0.2	"S"	Sim	
	Repair	O				0.5	0.5	"S"	Sim	
[illegible]	Pump Drive Intermediate [illegible]									

APPENDIX III-C

MAINTENANCE AND RELIABILITY ANALYSIS CHART

GROUP NO.	COMPONENT AND RELATED OPERATIONS	MAINT LEVEL C-OPER/CREW O-ORGZN F-DIRECT H-GENERAL		TM INSTRUCTIONS		ACTIVE MAINTENANCE TIME		LIFE H-HOURS M-MILES	REASON PERFORMED	REMARKS
		PRE-SCRIBED	RECOM-MENDED	ADE-QUATE	INADE-QUATE	CLOCK HOURS	MAN-HOURS			
1	2	3	4	5	6	7		8	9	10
	Service	C	O	X		0.1	0.1	"S"	Sim	
	Replace	F	F	X		0.5	0.5	"S"	Sim	
	Split Coupling Repair	F	F	X		E 1.0	E 1.0			Reviewed-not performed.

APPENDIX III-D

PARTS ANALYSIS CHART

It : #[illegible]

GP NO CROSS REF	FEDERAL STOCK NUMBER	NOUN NOMENCLATURE	MAINTENANCE LEVEL C- OPERATOR / CREW F-DIRECT O-ORGANIZATIONAL H-GENERAL		PART LIFE H-HOURS M-MILES	REASON USED	REMARKS
			PRESCRIBED	RECOMMEND.			
1	2	3	4	5	6	7	8
[illegible]	2940-580-6302	Filter Element	C	C	50.0 H	Scd.	50-Hour Oil Change
[illegible]	2940-580-6302	Filter Element	C	C	100.0 H	Scd.	
	MFG PART NOS.						
[illegible]	A001-M-36	Volute Casing	F	F	110.0 H	Unscd.	EPR L7-12.
[illegible]	A006-6-M36	Check Valve Gasket	O	O	110.0 H	Unscd.	EPR L7-12.
[illegible]	B500-M-36	Control Panel Assembly (Tachometer)	O	O	110.0 H	Unscd.	EPR L7-1.

PARTS ANALYSIS CHART

Item #H2283

GP NO. CROSS REF	FEDERAL STOCK NUMBER	NOUN NOMENCLATURE	MAINTENANCE LEVEL C-OPERATOR/CREW F-DIRECT O-ORGANIZATIONAL H-GENERAL		PART LIFE H-HOURS M-MILES	REASON USED	REMARKS
			PRESCRIBED	RECOMMEND.			
1	2	3	4	5	6	7	8
0100	2940-580-6302	Filter Element Oil	C	C	50.0 H	Scd	EPR L7-2
0100	2940-580-6302	Filter Element Oil	C	C	100.0 H	Scd	
0100	2940-580-6302	Filter Element Oil	C	C	150.0 H	Scd	
0100	2940-580-6302	Filter Element Oil	C	C	200.0 H	Scd	
0100	2940-580-6302	Filter Element Oil	C	C	250.0 H	Scd	
0100	2940-580-6302	Filter Element Oil	C	C	300.0 H	Scd	
0100	2940-580-6302	Filter Element Oil	C	C	350.0 H	Scd	
0100	2940-580-6302	Filter Elemert Oil	C	C	400.0 H	Scd	
0100	2940-580-6302	Filter Element Oil	C	C	450.0 H	Scd	

APPENDIX III-D

PARTS ANALYSIS CHART

Item #H2283

GP NO. CROSS REF	FEDERAL STOCK NUMBER	NOUN NOMENCLATURE	MAINTENANCE LEVEL C-OPERATOR/CREW F-DIRECT O-ORGANIZATIONAL H-GENERAL		PART LIFE H-HOURS M-MILES	REASON USED	REMARKS
			PRESCRIBED	RECOMMEND.			
1	2	3	4	5	6	7	8
0312	MFG PART NO. 13206E0809	Choke Assembly Automatic Solenoid	O	O	200.0 H	Unscd	EPR L7-4.
0603	2920-867-8827	Magneto	O	F	316.0 H	Unscd	EPR L7-8, Failure.
0603	2920-882-3401	Motor, Starter	O	O	350.0 H	Unscd	
0603	2920-882-3401	Motor, Starter	O	O	512.0 H	Unscd	EPR L7-11.
0603	MFG PART NO. 13213E3286	Solenoid, Starter Motor	O	O	512.0 H	Unscd	EPR L7-11
0607	MFG PART NO. 812831	Tachometer	O	O	225.0 H	Unscd	EPR L7-3.
1501	MFG PART NO. B004-M36	Lock pin	O	O	250.0 H	Unscd	EPR L7-5.
5501	MFG PART NO. A002-M36	Impeller	O	O	512.0 H	Unscd	EPR L7-11.

APPENDIX III-D

PARTS ANALYSIS CHART

Item #H2283

GP NO. CROSS REF	FEDERAL STOCK NUMBER	NOUN NOMENCLATURE	MAINTENANCE LEVEL C-OPERATOR/CREW F-DIRECT O-ORGANIZATIONAL H-GENERAL		PART LIFE H-HOURS M-MILES	REASON USED	REMARKS
			PRESCRIBED	RECOMMEND.			
1	2	3	4	5	6	7	8
5501	MFG PART NO. A003-M36	Sleeve Shaft	O	O	512.0 H	Unscd	EPR L7-11.
5501	MFG PART NO. A004-M36	Pump Seal	O	O	512.0 H	Unscd	EPR L7-11.
5501	MFG PART NO. A009-M36	Plate Seal	O	O	512.0 H	Unscd	EPR L7-11.
5501	MFG PART NO. A010-M36	Gasket	O	O	512.0 H	Unscd	EPR L7-11.
5501	MFG PART NO. A100-M36	Inter Assy	O	O	512.0 H	Unscd	EPR L7-11.
5501	MFG PART NO. A907-M36	Shim Set	O	O	512.0 H	Unscd	EPR L7-11.
5501	MFG PART NO. A909-M36	Primer Plug	F	F	512.0 H	Unscd	EPR L7-13.

APPENDIX III-E

MAINTENANCE PACKAGE LITERATURE CHART

Manuscript			Date Received		Evaluation		Form 1598	
Number	Qty	Title	Lit	Materiel	Adqt	Inadqt	Reference No. and date fwd	Remarks
1	2	3	4	5	6	7	8	9
TM 5-2805-204-14	1	Organizational DS and GS Maintenance Manual; Engine, Gasoline, Military Standard Models (Model 4-A084-II)	21 Aug 68	21 Aug 68	X		None	Satisfactory
Contract No.DAAK 01-67-C-A010	1	Operation, Maintenance and Overhaul Manual with parts list. Schleyer Model No. 36M-SPS 3011G-T, Pump, Centrifugal Gasoline Engine Driven	21 Aug 67	21 Aug 67		X	EPR L7-10 31 Dec 68	Changes submitted EPR L7-10 Electrical diagram submitted EPR L7-14

EQUIPMENT PERFORMANCE REPORT

1 FROM Commanding Officer U. S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-ET-L 3 DATE: 21 August 1968 4. EPR NO. L7-1
5. TO Commanding General U. S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. DAAK01-67C-A010 7. TEST TITLE Pump, Cent, 600 Gal/Min, Water

I. MAJOR ITEM DATA

8. MODEL 36M-SPS3011G-T	9. SERIAL NO. H-2282
10. QUANTITY One	11. LIFE PERIOD 0 Hours
12. MFR. E. C. Schleyer Pump Co., Inc.	13. USA NO.

II. PART DATA

14. NOMENCLATURE/DESCRIPTION Eng. 4A084II Tachometer	
15. FSN	16. MFR. PART NO. 102-812831
17. DRAWING NO.	18. MFR. Hercules Engines Inc.
19. QUANTITY One	20. NEXT ASSEMBLY -
21. STD. GOVT. GRP.	22. PART TEST LIFE 0 Hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	POL Test Area	c. DEFICIENCY	a. REPLACED
b. MAINTENANCE		X b. SHORTCOMING	b. REPAIRED
X c. IP Test		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
27. DATE AND HOUR OF INCIDENT 1300 hours, 20 August 1968			X f. NONE

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

When engine was started to perform IP Tests, it was noted that the tachometer was inoperative.

This failure is considered to be a shortcoming.

29 DEFECTIVE MATERIAL SENT TO:

30 NAME, TITLE & TEL EXT OF PREPARER M. A. Stowell MARCEL A. STOWELL Project Leader - 2186	31 FOR THE COMMANDER: by M. A. Stowell JAMES T. DONAHUE Chief, Log Spt Eq Test Div

STE Form 1025, 18 DEC 67 REPLACES AMSTE Form 1025,

USATECOM REGULATION 705-4

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer U.S. Army General Equipment Test Activity Ft Lee, VA 23801	2. OFFICE SYMBOL: STEGE-SS-MED 3. DATE: 14 October 1968 4. EPR NO. L7-2
5. TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. DAAK01-67-C-A010 7. TEST TITLE: Pump, Cent, 600 Gal/Min, Water

I. MAJOR ITEM DATA

8. MODEL	36M-SPS3011GT	9. SERIAL NO.	H-2283
10. QUANTITY	1	11. LIFE PERIOD	50 hours
12. MFR.	E.C. Schlever Pump Co. Inc.	13. USA NO.	N/A

II. PART DATA

14. NOMENCLATURE/DESCRIPTION	Breather Assembly Air Inlet		
15. FSN	2520-867-8819	16. MFR. PART NO.	13206E0550
17. DRAWING NO.	N/A	18. MFR.	97403 ERDL
19. QUANTITY	1	20. NEXT ASSEMBLY	Engine Block
21. STD. GOVT. SRP.	0106	22. PART TEST LIFE	50 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	River Test Site	a. DEFICIENCY	a. REPLACED
X b. MAINTENANCE		b. ENGINEERING	b. REPAIRED
c.		X c. DES. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. [illegible]
			e. [illegible]
			X f. [illegible] See block

27. DATE AND HOUR OF INCIDENT: 9 October 1368 0900 hours

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

(Reference TM 5-2805-204-14, page 42, figure 38; Lubrication Order 5-2805-204-14, page 13, figure 6)

a. The crankcase breather assembly is not accessible for removal with tools found in the general mechanics tool set (FSN 5180-754-0641) when the engine is hot.

b. Removal of the breather assembly during the 50 hour service on the hot engine tends to burn the repairman's hand because of the insufficient work space. Improvised tools (i.e., cam lock pliers) will be used and damage to breather assembly will result.

c. The 50 hour scheduled service is easy to neglect because of the difficulty and hazard involved, and contributes to premature engine failure.

d. Improper design is considered to be the cause of this incident.

e. Redesign of the breather assembly to permit removal with a socket wrench on top is suggested.

29. DEFECTIVE MATERIAL SENT TO: N/A

30. NAME, TITLE & TEL EXT OF PREPARER JOSEPH T. HARVEY Equip Spec (Gen) ext 1006	31. FOR THE COMMANDER: ROBERT A. NULK MAJ, ORD Chief, Maintenance Evaluation Div

APPENDIX IV

EQUIPMENT PERFORMANCE REPORT

1. FROM Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-TE-S 3. DATE: 18 November 1968 4. EPR NO. 1.7-3-(1-2)
5. TO Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. DAAK01-67-C-A010 7. TEST TITLE Initial Production Test of Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL 3GM-5PS3011G-T	9. SERIAL NO. H-2283
10. QUANTITY 2	11. LIFE PERIOD 230 hours
12. MFR. E. C. Schleyer Pump Co., Inc.	13. USA NO. N/A

II. PART DATA

14. NOMENCLATURE / DESCRIPTION Tachometer	
15. FSN None	16. MFR. PART NO. 812831
17. DRAWING NO. N/A	18. MFR. 57733
19. QUANTITY one	20. NEXT ASSEMBLY Control Panel
21. STD. GOVT. GRP. 0607 - Control Panel	22. PART TEST LIFE 230 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
X a. OPERATION	River test site	a. DEFICIENCY	a. REPLACED
b. MAINTENANCE		X b. SHORTCOMING	b. REPAIRED
c.		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
			X f. NONE See 28

27. DATE AND HOUR OF INCIDENT 1600, 12 Nov 68

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. Tachometer readings fluctuated from 3000 to 3200 rpm over an extended period. At the time of the incident, the tachometer indicated less than 100 rpm. Check test with instrumented portable tachometer indicated that engine was running at pre-set 3200 rpm (Page 8, para 2-10-6, manufacturer's manual). Operations continued, and maintenance was deferred until regular scheduled 250-hour quarterly maintenance service.

b. Incident is classified as a shortcoming pending evaluation of repairs required.

29. DEFECTIVE MATERIAL SENT TO: N/A

30. NAME, TITLE & TEL EXT OF PREPARER THOMAS N. HORGAN, III, 1Lt, TC Test Officer, MBE/POL Equip Test Br ext 1585/1697	31. FOR THE COMMANDER: DAVID P. JAMES, Acting Chief MBE/POL Equipment Test Branch Service Test Division, Testing Directorate

STE Form 1025, 18 DEC 67 REPLACES AMSTE Form 1025, 1

APPENDIX IV

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-SS-E 3. DATE: 21 November 1968 4. EPR NO. 1,7-4
5. TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, MO. 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. 7. TEST TITLE: Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL: 36M-SPS 3011 GT	9. SERIAL NO.: E-2283
10. QUANTITY: 2	11. LIFE PERIOD: 250 hours
12. MFR.: F.C. Schleyer Pump Co. Inc.	13. USA NO.: N/A

II. PART DATA

14. NOMENCLATURE / DESCRIPTION: Choke Assembly, Automatic	
15. FSN: N/A	16. MFR. PART NO.: 13206E0809
17. DRAWING NO.: N/A	18. MFR.: 97403
19. QUANTITY: 1	20. NEXT ASSEMBLY: Carburetor
21. STD. GOVT. GRP.: 03.12	22. PART TEST LIFE: 250 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	GETA Maintenance Shop	a. DEFICIENCY	a. REPLACED
X b. MAINTENANCE		X b. SHORTCOMING	b. REPAIRED
c.		c. DES. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. [illegible]
			e. [illegible]
			X f. [illegible] See block 28

27. DATE AND HOUR OF INCIDENT: 19 Nov 68, 1015 hrs

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. The automatic choke failed to function when cold start of engine was required during quarterly maintenance.

b. Testing with a multi-meter revealed an open circuit in the automatic choke [redacted].

c. Cause of shortcoming is unknown.

d. Testing of the major item will continue.

e. Hand choke will be used when necessary until a replacement automatic choke assembly is obtained.

f. A temperature sensitive (thermal) type choke is recommended over the present electrical type which appears to be (2 position) completely open or completely closed.

g. Request documentation regarding operation of the automatic choke and basic requirement for an electrical type choke on the test item be furnished this command, ATTN: STEGE-SS-E.

29. DEFECTIVE MATERIAL SENT TO:

30. NAME, TITLE & TEL EXT OF PREPARER

JOSEPH T. HARVEY
Equip Spec (Gen)
MED, SSD, ext 1006

31. FOR THE COMMANDER:

Robert A. Nulk

ROBERT A. NULK
MAJ, ORD
Chief, MED, SSD

SYE Form 1085, 10 DEC 67 REPLACES AMSYE Form 1085, 3 JAN [illegible] SYE USATECOM REGULATION 700-4

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer U.S. Army General Equipment Test Activity Ft. Lee, VA 23801	2. OFFICE SYMBOL: STEGE-SS-E 3. DATE: 21 November 1968 4. EPR NO. L7-5
5. TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, MO 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. 7. TEST TITLE: Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL	36M-SPS 3011 GT	9. SERIAL NO.	H-2283
10. QUANTITY	2	11. LIFE PERIOD	250 hours
12. MFR.	E.C. Schleyer Pump Co. Inc.	13. USA NO.	N/A

II. PART DATA

14. NOMENCLATURE/DESCRIPTION	Pin, Anchor on Trailer		
15. FSN	N/A	16. MFR. PART NO.	B003-M36
17. DRAWING NO.	N/A	18. MFR.	E.C. Schleyer Pump Co. Inc.
19. QUANTITY	3	20. NEXT ASSEMBLY	Trailer Frame
21. STD. COVT. SRP.	1501	22. PART TEST LIFE	250 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	GETA Maintenance Shop	a. DEFICIENCY	X a. REPLACED
X b. MAINTENANCE		X b. SHORTCOMING	b. REPAIRED
c.		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. REWORKED
			e. REMOVED
			f. NONE

27. DATE AND HOUR OF INCIDENT: 19 November 1968, 1015 hrs

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. During quarterly maintenance inspection, the lock pin on the right side of the trailer was observed missing and assumed lost during movement from the test site to the maintenance shop. The lock pin is attached to the test item frame with a chain and split ring. The ring opening is covered by wrapping with friction tape, as are the other 2 lock pins on the test item.

b. The friction tape had slipped away from the ring opening, permitting the pin to separate from the chain and apparently was lost.

c. The method of retaining the lock pins by covering the ring opening with friction tape is not considered satisfactory.

d. Additional study is being made of the incident and recommendations for improvement will be submitted.

29. DEFECTIVE MATERIAL SENT TO:

30. NAME, TITLE & TEL EXT OF PREPARER	31. FOR THE COMMANDER:
JOSEPH T. HARVEY Equip Spec (Gen) MED, SSD, ext 1006	ROBERT A. NULK MAJ, ORD Chief, MED, SSD

DTE Form 1085, 18 DEC 67 REPLACES ABOVE Form 1025.

USATECOM REGULATION 705-4

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-SS-E 3. DATE: 26 November 1968 4. EPR NO. SPECIAL
5. TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. See Block 28 RDT&E PROJ NO. CONTRACT NO. 7. TEST TITLE See Block 28

I. MAJOR ITEM DATA

8. MODEL	9. SERIAL NO.
10. QUANTITY	11. LIFE PERIOD
12. MFR.	13. USA NO.

II. PART DATA

14. NOMENCLATURE/DESCRIPTION: Tachometer (Electrical)

15. FSN	16. MFR. PART NO. 102 and 812831
17. DRAWING NO.	18. MFR. Stewart Warner
19. QUANTITY 4	20. NEXT ASSEMBLY Engine
21. STD. GOVT. GRP.	22. PART TEST LIFE 0; 30; 225; 344.5 hrs

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION		X a. DEFICIENCY	X a. REPLACED
b. MAINTENANCE		b. SHORTCOMING	b. REPAIRED
X c. See Block 28		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED

27. DATE AND HOUR OF INCIDENT | f. NONE

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. During initial production tests of the 200-GPM Centrifugal Pumps (USATECOM Project No. 7-7-0784-01), and the 600-GPM Centrifugal Pumps (USATECOM Project No. 7-8-0961-01), malfunctions of the same component (electrical tachometer, Mfr. No. 102-812831 and 812831) occurred on all test items (4).

b. Repeated malfunctions of a single component on separate equipment appears significant enough to warrant a special investigation prior to future procurement of items using the component. Whether or not this tachometer is used on end items other than those listed above is unknown at this time.

c. Attached for consideration are the problem areas and supporting data which document the component malfunctions.

d. The malfunctions of the tachometer are classified together as a deficiency insofar as the tachometers themselves are concerned--even though the malfunctions were separately classified as shortcomings with regard to the mission accomplishment of the end items to which they were attached. One or more of the aspects of quality control, accuracy, reliability, durability, and application have caused the tachometers to be inadequate for the performance of their intended functions.

(Continued)

29. DEFECTIVE MATERIAL SENT TO:

30. NAME, TITLE & TEL EXT OF PREPARER	31. FOR THE COMMANDER:
JOSEPH T. HARVEY, Equip Spec (Gen) MED, SSD, ext 1006	ROBERT A. NULK, MAJ, ORD, Chief, MED, SSD

STEGE-SS-E
EPR NO.: SPECIAL

Block 28, Continued:

e. It is recommended that:

(1) An investigation, study, or test be conducted to identify and correct the problem.

(2) Consideration be given to use of a mechanical tachometer in place of the electrical tachometer on the aforementioned items.

USATECOM Project Nos. 7-7-0784-01 and 7-8-0961-01

STEGE-SS-E
EPR No.: SPECIAL

Problems concerning the tachometer were as follows:

1. One tachometer tested upon receipt was inaccurate by 800 rpm, indicating a need for improved quality control.

2. Another tachometer was tested after 30 operating hours and was found to be inaccurate by 400 rpm, indicating a possibility of poor quality control or low reliability.

3. Two additional tachometers developed malfunctions at 225.0 and 344.5 test hours respectively, indicating a high mortality rate.

4. Electrical schematic wiring diagrams, furnished with the test items, were not identical to actual wiring of the test items, thereby causing additional problems during corrective maintenance.

5. The actual wiring of the two test items using the same tachometer and control panel was not identical and did not conform to schematic wiring diagrams as furnished by the manufacturer.

6. Two organizational maintenance personnel assigned to the test projects were not knowledgeable about troubleshooting the tachometer and its associated component: electrical sender, Mfr. No. 811532. Either additional troubleshooting information should be included in the literature or additional training should be provided for the mechanics (62B20 and 63C20).

7. A combined mechanical tachometer/hour meter used on the 350-GPM Pump (FSN 4320-916-9172) appears to be more reliable and would eliminate the electrical problem areas.

USATECOM Project Nos. 7-7-0784-01 and 7-8-0961-01

Incl 1

END ITEM	EPR OR REFERENCE	DATE OF EPR	TEST HRS OF PART	NAME AND MFR OF COMPONENT	MFR PART NUMBER	MALFUNCTION
200-GPM Centrifugal Pump, Gorman-Rupp, 392664, (USATECOM 7-7-0784-01)	L7-10	16 Aug 68	344.5	Tachometer Stewart-Warner	102-812831	Indicator (Needle) fell off its shaft
200-GPM Centrifugal Pump, Gorman-Rupp, 392632, (USATECOM 7-7-0784-01)	Eng. Test Report Input, Mr. Stowell	20 Jun 68	30.0	Tachometer Stewart-Warner	102-812831	Inaccurate by 400 rpm
600-GPM Centrifugal Pump, GED 4", Wheel Mtd, E.C. Schleyer, H2283, (USATECOM 7-8-0961-01)	L7-3-(1-2)	13 Nov 68	225.0	Tachometer Stewart-Warner	812831	Indicator fluctuated and then dropped to 100 rpm. Engine speed continued at 3200 rpm
600-GPM Centrifugal Pump, GED 4", Wheel Mtd, E.C. Schleyer, H2282, (USATECOM 7-8-0961-01)	L7-1	21 Aug 68	0.0	Tachometer Stewart-Warner	812831	Inoperative on receipt

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer US Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-TE-T 3. DATE: 29 November 1968 4. EPR NO. L7-6
5. TO: Commanding General US Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. 7. TEST TITLE: Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL	36M-SPS 3011 GT	9. SERIAL NO.	H-2283
10. QUANTITY	3	11. LIFE PERIOD	20 hours
12. MFR.	E. C. Schleyer Pump Co., Inc.	13. USA NO.	NA

II. PART DATA

14. NOMENCLATURE/DESCRIPTION	Tiedown Eyes		
15. FSN	UNK	16. MFR. PART NO.	UNK
17. DRAWING NO.	Fig 1-2, Pg 2, Oper Maint & Ovh	18. MFR.	E. C. Schleyer Pump Co., Inc
19. QUANTITY Man	4	20. NEXT ASSEMBLY	Frame, Trailer
21. STD. GOVT. GRP.	18	22. PART TEST LIFE	20 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	Rail Transportability	a. DEFICIENCY	a. REPLACED
b. MAINTENANCE		X b. SHORTCOMING	b. REPAIRED
X c. Rail Humping Test		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
			X f. NONE

27. DATE AND HOUR OF INCIDENT: 1530 hours, 27 November 1968

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

During the 8 MPH railcar hump test, the 4 tiedown eyes bent and 5 of the 8 welds securing the eyes to the pump frame fractured.

29. DEFECTIVE MATERIAL SENT TO: NA

30. NAME, TITLE & TEL EXT OF PREPARER	31. FOR THE COMMANDER:
WILLIAM J. COOLSBY Project Director LOTS Test Branch, TTD, X1595	DONAVON F. WOOSTER Acting Chief LOTS Test Branch, TTD

STE Form 1025, 10 DEC 67 REPLACES AMSTE Form 1025.

USATECOM REGULATION 705-4

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer
U.S. Army General Equipment Test Activity
Fort Lee, Virginia 23801

2. OFFICE SYMBOL: STEGE-TE-S
3. DATE: 5 December 1968
4. EPR NO. L7-7

5. TO: Commanding General
U.S. Army Mobility Equipment Command
ATTN: AMSME-QRT
4300 Goodfellow Boulevard
St. Louis, Missouri 63120

6. USATECOM PROJ NO. 7-8-0961-01
RDT&E PROJ NO.
CONTRACT NO. DAAK01-67-C-A010

7. TEST TITLE: Initial Production Test of Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL: 36M-SPS3011G-T
9. SERIAL NO.: H-2283
10. QUANTITY: 3
11. LIFE PERIOD: 300 hours
12. MFR.: E.C. Schleyer Pump Co., Inc.
13. USA NO.: N/A

II. PART DATA

14. NOMENCLATURE/DESCRIPTION: Wire from Tachometer Sending Unit to Tachometer, Engine 4A064II
15. FSN: None
16. MFR. PART NO.: 812831
17. DRAWING NO.: Fig 12
18. MFR.: Stewart and Warner
19. QUANTITY: one
20. NEXT ASSEMBLY: Tachometer
21. STD GOVT. GRP.
22. PART TEST LIFE: 300 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
X a. OPERATION	Beach test site, Fort Story, VA	a. DEFICIENCY	a. REPLACED
b. MAINTENANCE		X b. SHORTCOMING	b. REPAIRED
c.		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
			X f. NONE

27. DATE AND HOUR OF INCIDENT: 2 Dec 68, 0900

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. The wire extending from the tachometer sending unit to the tachometer became pinched between the top and bottom shrouds of the engine. The top shroud is taken off the engine for performance of daily maintenance on the engine. When this top shroud is replaced, this wire becomes pinched unless extreme care is exercised. Reference Fig 12, Page 21, TM 5-2805-204-14, Jul 65.

b. From a performance viewpoint, this is considered a shortcoming because no provisions have been made to keep the wire from being pinched during performance of daily maintenance.

29. DEFECTIVE MATERIAL SENT TO: N/A

30. NAME, TITLE & TEL EXT OF PREPARER

THOMAS M. HORGAN, 1LT, TC, Test Officer
Fort Story Test Facility
AUTOVON 555-1420, ext 5104

31. FOR THE COMMANDER:

DENNIS B. SULLIVAN, MAJ, QMC
Chief, MHE and POL Equipment Test Branch
Service Test Division, Testing Directorate

STE Form 1025, 18 DEC 67 REPLACES AMSTE Form 1025,

USATECOM REGULATION 705-4

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-ST-M 3. DATE: 9 December 1968 4. EPR NO. L7-8
5. TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. DAAK01-67-C-A010 7. TEST TITLE: Initial Production Test of Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL: 36M-SPS3011G-T	9. SERIAL NO.: H-2283
10. QUANTITY: 3	11. LIFE PERIOD: 316 hours
12. MFR.: E. C. Schlever Pump Co., Inc.	13. USA NO.: N/A

II. PART DATA

14. NOMENCLATURE / DESCRIPTION: Magneto	
15. FSN: 2920-867-8867	16. MFR. PART NO.: 13206E1280
17. DRAWING NO.: N/A	18. MFR.: Fairbanks-Morse
19. QUANTITY: 1	20. NEXT ASSEMBLY: Timing Gear
21. STD. GOVT. GRP.: 0605	22. PART TEST LIFE: 316 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
X a. OPERATION	Salt water pumping operations, Fort Story, Virginia	X a. DEFICIENCY	X a. REPLACED
X b. MAINTENANCE		b. SHORTCOMING	b. REPAIRED
c.		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
			f. NONE

27. DATE AND HOUR OF INCIDENT: 4 Dec 68, 0930

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. Test item engine would not start.

b. Inspection and trouble-shooting revealed malfunction of the magneto (Serial No. 5805606).

c. Partial disassembly of the component revealed:

(1) Center carbon contact point of distributor cap to rotor was completely worn out. Spring tension was gone, and the carbon contact point was rendered totally inoperative.

(2) The contact point set (82796 22437H) plate was loose (four screws were only hand tight).

(3) 1/8" lateral movement was evident in the magneto drive gear.

d. Incident is classified as a deficiency because it caused the engine to be inoperative.

e. Cause of incident is attributed to faulty assembly of the magneto by the manufacturer.

29. DEFECTIVE MATERIAL SENT TO: Retained

30. NAME, TITLE & TEL EXT OF PREPARER	31. FOR THE COMMANDER:
THOMAS M. HORGAN, 1LT, TC, Test Officer Fort Story Test Facility AUTOVON 555-1420, ext 5104	Dennis B. Sullivan DENNIS B. SULLIVAN, MAJ, QMC Chief, MHE and POL Equipment Test Branch Service Test Division, Testing Directorate

DTE Form 1025, 18 DEC 67 REPLACES AMSTE Form 1025,

USATECOM REGULATION 705-4

APPENDIX IV

EQUIPMENT PERFORMANCE REPORT

1. FROM Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-TE-S 3. DATE: 16 December 1968 4. EPR NO. L7-9
5. TO Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. DAAK01-67-C-A010 7. TEST TITLE Initial Production Test of Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL 36M-SPS3011G-T	9. SERIAL NO. H-2283
10. QUANTITY 3	11. LIFE PERIOD 350 hours
12. MFR. E. C. Schleyer Pump Co., Inc.	13. USA NO. N/A

II. PART DATA

14. NOMENCLATURE / DESCRIPTION Motor, Starter, 24v, Solenoid Actuated	
15. FSN 2920-882-3401	16. MFR. PART NO. MS53013-1
17. DRAWING NO. Fig 18, Item No. 5	18. MFR. Military Standard
19. QUANTITY 1	20. NEXT ASSEMBLY Engine
21. STD. GOVT. GRP.	22. PART TEST LIFE 350 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
X a. OPERATION	Salt water pumping operations, Fort Story, Virginia	a. DEFICIENCY	a. REPLACED
b. MAINTENANCE		X b. SHORTCOMING	b. REPAIRED
c.		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
			X f. NONE See para 28

27. DATE AND HOUR OF INCIDENT 10 Dec 68, 1100 hours

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. Starter motor failed to function. Reason for malfunction is unknown. There was no difficulty in starting the pump manually.

b. This is judged to be a shortcoming because the pump can continue to operate. If cause of malfunction can be determined, a supplementary EPR will follow.

c. EPR was telephoned to USATECOM 13 Dec 68, 1500 hours.

29. DEFECTIVE MATERIAL SENT TO: N/A

30. NAME, TITLE & TEL EXT OF PREPARER THOMAS M. HORGAN, 1LT, TC, Test Officer Fort Story Test Facility AUTOVON 555-1420, ext 5104	31. FOR THE COMMANDER: DENNIS B. SULLIVAN, MAJ, QMC Chief, MIE and POL Equipment Test Branch Service Test Division, Testing Directorate

STE Form 1025, 18 DEC 67 REPLACES AMSTE Form 1025,

USATECOM REGULATION 705-4

APPENDIX IV

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-SS-E 3. DATE: 19 December 1968 4. EPR NO. L7-9s
5. TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. DAAK01-67-C-A010 7. TEST TITLE Initial Production Test of Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL	36M-SPS3011G-T	9. SERIAL NO.	H-2283
10. QUANTITY	3	11. LIFE PERIOD	350 hours
12. MFR.	E.C. Schleyer Pump Co. Inc.	13. USA NO.	N/A

II. PART DATA

14. NOMENCLATURE / DESCRIPTION	Motor Starter, 24 volt, Solenoid Actuated		
15. FSN	2920-882-3401	16. MFR. PART NO.	MS53013
17. DRAWING NO.	Fig 18, Item No. 5	18. MFR.	Military Standard
19. QUANTITY	1	20. NEXT ASSEMBLY	Engine
21. STD. GOVT. SRP.	0603	22. PART TEST LIFE	350 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	Salt Water Pumping Operations, Fort Story, Virginia	a. DEFICIENCY	a. REPLACED
X b. MAINTENANCE		X b. SHORTCOMING	XX b. REPAIRED
c.		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
27. DATE AND HOUR OF INCIDENT			f. NONE

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY (Reference EPR L7-9)

d. Disassembly of the starter revealed corrosion on the armature and all internal parts of the starter.

e. This is attributed to the salt water environment.

f. The starter was cleaned with dry solvent, dried, reassembled, tested and returned to service and is operating satisfactory.

g. Recommendation: Page 38, Paragraph 52-C(2), TM 5-2805-204-14 contains a "caution": "Every 250 hours remove starter drive gear housing and tighten the two screws that hold the end plate on the starter." Recommend this "caution" be placed in the end item manual under Quarterly Maintenance and include cleaning the starter motor internally.

DEFICIENCIES AND SHORTCOMINGS ARE SUBJECT TO RECLASSIFICATION

29. DEFECTIVE MATERIAL SENT TO:

30. NAME, TITLE & TEL EXT OF PREPARER JOSEPH T. HARVEY Equip Spec (Gen) MED, SSD; ext 1006/4487	31. FOR THE COMMANDER: ROBERT A. NOLK, MAJ, ORD, C, MED, SSD

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer, U.S. Army General Equipment Test Activity, Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-SS-E
	3. DATE: Dec. 31, 1968
	4. EPR NO.: L7-10
5. TO: Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-QRT, 4300 Goodfellow Boulevard, St. Louis, Missouri 63120	6. USATECOM PROJ NO.: 7-8-0961-01
	RDT&E PROJ NO.
	CONTRACT NO.: DAAK01-67-C-A010
	7. TEST TITLE: Initial Production Test of Pump Centrifugal, 600-GPM

I. MAJOR ITEM DATA

8. MODEL: 3n-M-SPS3011G-T	9. SERIAL NO.: N/A
10. QUANTITY: 3	11. LIFE PERIOD: N/A
12. MFR.: E. C. Schleyer Pump Co. Inc.	13. USA NO.: N/A

II. PART DATA

14. NOMENCLATURE / DESCRIPTION: Operation, Maintenance & Overhaul Manual, with Parts List	
15. FSN	16. MFR. PART NO.
17. DRAWING NO.	18. MFR.
19. QUANTITY	20. NEXT ASSEMBLY
21. STD. GOVT. SRP.	22. PART TEST LIFE

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	Maintenance Evaluation	a. DEFICIENCY	a. REPLACED
b. MAINTENANCE		b. SHORTCOMING	b. REPAIRED
X c. Manual Review		XX c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
			XX f. NONE See block 28

27. DATE AND HOUR OF INCIDENT

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. Attached are recommended changes and additions to Operation, Maintenance and Overhaul Manual with Parts List for Schleyer 600-GPM Centrifugla Pump, Model No. 36M-SPS3011G-T.

b. During conduct of the test, the manual was continuously evaluated to determine its applicability and adequacy for the test item. The suggested recommendations should improve the operation and maintenance of the test item.

DEFICIENCIES AND SHORTCOMINGS ARE SUBJECT TO RECLASSIFICATION

29. DEFECTIVE MATERIAL SENT TO:

30. NAME, TITLE & TEL EXT OF PREPARER

JOSEPH T. HARVEY, Equip Spec (GEN)
ext 1006/4457

31. FOR THE COMMANDER:

ROBERT A. NULK, MAJ, ORD, C, MED, SSD

DA Form 1575, 15 DEC 67 REPLACES AMSTE Form 1017

USATECOM REGULATION 705-4

RECORD OF COMMENTS ON PUBLICATIONS (AR 310-3)

DATE: 17 Dec 68

SUBJECT: Operation, Maintenance & Overhaul Manual w/parts list, Schleyer Model No. 36M-SPS 3011G-T, Centrifugal Pump, Gasoline Eng Driven, USATECOM Project No. 7-8-0961-01

REVISION NOTES FROM

ITEM NR	PAGE	PARAGRAPH	LINE*	COMMENT (Exact wording of recommended change must be given)
1	iii	During Operations		Add: "CAUTION: Do not tow trailer over 30 mph on surface roads." Explanation: Page 1, Par. 1-2-0, indicates the above caution. DUPING OPERATIONS appears to be the logical place for this caution. Information furnished to the test officer reveals that the test item is not designed for towing at convoy speeds (1. Test item has no safety chain; 2. Test item is wheel mounted only for ease of movement in work area).
2	iii	After Operations (2nd Par.)		Delete the whole paragraph. Explanation: This paragragh is a duplication of paragraph 4 on the same page and can be deleted.
3	iii	After Operations (3rd Par.)		Delete the whole paragraph. Add whole paragraph in appropriate section of manual, Pars. 3-15b and 3-15d. Explanation: Tank repairs requiring welding or soldering would require removal. Instructions shown should be in the removal paragraphs.
4	1	1-1	4	Delete: "operation"; add: "maintenance instructions." Explanation: Chapter 2, Section III, NOTE, in TM 5-2805-204-14 states that operating instructions are not provided in this manual. However, maintenance instructions for the engine are provided.
5	1	1-2.A	7	Delete: "instrument"; add: "control." Explanation: Control is used for identity nomenclature in parts list and figures designated throughout manual.
6	1	1-2.A	7	Delete: "(Fig 1-2)"; add: "(Fig 2-2)." Explanation: Figure 1-2 does not show the controls. Figure 2-2 show the controls.
7	1	1-2.D	3	Delete: "stand"; add: "support leg." Explanation: Support leg is used for proper nomenclature in parts list.
8	4	1-3.C	5	Add after "head": "and equals total of lift and discharge head measured in feet." Explanation: This explanation may help avoid field problems when specified 600-GPM cannot be accomplished because Total Dynamic Head (TDH) is not fully understood. The 350-GPM Pump appears to be the same as the 600-GPM Pump and the TDH is the significant factor.
9	5	1-5.A.2		Recommendation: 1. The performance plate be eliminated on future procurements because:

* Reference to line number within the paragraph or subparagraph

DA FORM 1 DEC 55 1598

RECORD OF COMMENTS ON PUBLICATIONS
AR 310-31

DATE: 17 December 1968

SUBJECT: Operation, Maintenance & Overhaul Manual w/parts list, Schleyer Model No. 36M-SPS 3011G-T, Centrifugal Pump, Gasoline Engine Driven, USATECOM Project No. 7-8-0961-01

REVISION NOTES FROM

ITEM NR	PAGE	PARAGRAPH	LINE*	COMMENT (Exact wording of recommended change must be given)
9	5 (Continued)	1-5.A.2		a. It was not used during testing. b. The operator did not know its purpose. c. The technical manual contains no instructions for its use. 2. If the above recommendation is not acceptable: a. Add to the manual instructions for use of the performance plate. b. Place caution in the manual to prevent painting over the performance plate. c. Add an illustration in the manual of the performance plate to be used when the actual performance plate is no longer serviceable (i.e., TM 5-4320-242-15, Page 2-11, MEC 5-4320-242-15/2-4. Explanation: Self explanatory.
10	7	2.7.A	1	Add after "SUCTION LINE": "CAUTION: Attach a suitable strainer before operating pump." Explanation: A strainer is not provided as a basic issue item and must be obtained on site. A caution is recommended to prevent operation, and subsequent damage, without a strainer.
11	8	2.9	1	Delete line 1. Explanation: The controls on the engine are not described in TM 5-2805-204-14.
12	8	2.9	3	Add after "control panel": "(Fig 2.2)." Explanation: The controls referenced are shown in Fig 2.2.
13	8	2.9	15	Add after "position": "and the oil pressure switch depressed." Explanation: The oil pressure switch must be depressed to complete the magneto ignition circuit when oil pressure is below 20 psi as indicated further in this paragraph. Specified instructions are required to avoid starting difficulties with inexperienced operators.
14	8	Fig 2-2		Delete: "Override low oil pressure cut-off switch." Add: "Start engine." Explanation: Simpler language is applicable for the intended level of reading. The last sentence in Par. 2.9 explains the function of the low oil pressure switch; however, previous experience has revealed operators do not fully comprehend this explanation.
15	8	2-10.1	3	Delete: "Fig 3-2". Add: "Fig 3-1." Explanation: Fig 3-2 refers to electrical wiring diagram. Fig 3-1 refers to preventive maintenance.

* Reference to line number within the paragraph or subparagraph.

DA FORM 1 DEC 55 1598

RECORD OF COMMENTS ON PUBLICATIONS	For use of this form, see AR 310-3; the proponent agency is Office of the Assistant Chief of Staff for Force Development.	DATE 17 Dec 68

SUBJECT: Operation, Maintenance & Overhaul Manual w/parts list, Schleyer Model No. 36M-SPS 3011G-T, Centrifugal Pump, Gasoline Driven, USATECOM Project No. 7-8-0961-01

REVISION NOTES FROM

ITEM NO.	PAGE	PARAGRAPH	LINE *	COMMENT (Exact wording of recommended change must be given.)
16	8	2-10.4	3	Add after "(TM 5-2805-205-14)": "Figure 5." Explanation: To help operator find the proper figure and instructions for the oil baffel control. Fig 3, TM 5-2805-204-14 shows a clearer view of the oil baffel control. However, there are no instructions for the oil baffel control on Fig 3. Consideration should be given for inclusion of the instructions and illustration in the "end item" operators manual because this is an operational function.
17	8	2-10.6		Change as follows: "Depress oil pressure switch and start switch." Explanation: Oil pressure switch must be depressed for all initial startings, or when less than 25 psi oil pressure is in the system (Ref Par. 2.9).
18	9	2-12	1	Add after "stopping": "CAUTION: Reduce engine speed to 700 or 800 rpm with the governor control to prevent back firing." Explanation: Back firing occurs when run-stop switch is activated to the stop position at high speed.
19	9	2-14.D		Add after "warm up": "by manually adjusting governor control to approximately 1500 rpm." Explanation: Engine governor control is pre-set at 3200 rpm (Par. 2-10.6, note) and will attain this speed immediately unless it is controlled manually by the operator.
20	10	2-18.4		Change paragraph as follows: "Hold choke control in the OUT position while pulling rope to start engine." Explanation: Manual choking is required when the battery is weak or dead (Ref. Par. 2-10.6, note).
21	12	3-6	3	Delete NOTE. Explanation: The note may be deleted because the instruction is shown in line 1 of Par. 3.6 (items 1 through 15) and again on page 13, item 9.
22	17	Fig 3-7	Item 9	Delete: "INSULATED." Add: "STARTER SOLENOID." Explanation: Both cables are insulated so this would not properly identify the item. Item 7 is identified as the ground cable. Adding starter solenoid to item 9 will standardize the nomenclature for identification purposes and should be added in parts list.
23	19	3-16	1	Delete: "3-9." Add: "5-1." Explanation: Fig 3-9 illustrates the fuel system. Fig 5-1 illustrates trailer parts.

* Reference to line number within the paragraph or subparagraph.

DA FORM 1 DEC 68 1598

APPENDIX IV

RECORD OF COMMENTS ON PUBLICATIONS	For use of this form, see AR 310-3; the proponent agency is Office of the Assistant Chief of Staff for Force Development.	DATE 17 Dec 68

SUBJECT Operation, Maintenance & Overhaul Manual w/parts list, Schleyer Model No. 36M-SPS3011G-T, Centrifugal Pump, Gasoline Driven, USATECOM Project No. 7-8-0961-01

REVISION NOTES FROM

ITEM NO.	PAGE	PARAGRAPH	LINE *	COMMENT (Exact wording of recommended change must be given.)
24	20	3-16.Ca	1	Add after "refer to". "paragraph 3.18 and". Explanation: Paragraph 3.18 directs that pump and engine will be removed as a unit.
25	22	3-18.B.3		Delete: "to the pump and engine assembly." Add: "in the threaded hole on top of the intermediate housing and the engine block." Explanation: An eye bolt threaded into these holes was used satisfactorily during service testing.
26	23	4-2.B	1	Delete: "(41)". Add: "(44)". Explanation: While (41) is incorrect, (44) is correct (see Fig 4-1, Page 26 and Par. 4.4e3, Page 25, and parts list 4-1-44, Page 29).
27	23	4-3.B.1	1	Delete: "retaining." Add: "snap". Explanation: Standardizing nomenclature with parts list nomenclature, Page 29, Index 4-1-37.
28	25	Fig 4-1		Add: "item 21." Explanation: Items 22 and 23, combined, are item 21. The parts list shows item 21 but does not show items 22 and 23.
29	30	Index No. 3-7-7		Add after battery: "ground." Explanation: To simplify ordering of parts and reduce error.
30	30	Index No. 3-7-9		Add after battery: "starter solenoid." Explanation: Same as item 29, above.
31	31	Index No. 3-12-1		Delete: "Washer lock 3/8-in, MS 35338-46." Add: "Screw cap, 3/8-in x 16-1, MS 90725-16." Explanation: To make the parts list correspond with Figure 3-12, No. 1.
32	31	Index No. 3-12-2		Delete: "Screw cap, 3/8-16-1, MS 90725-16." Add: "Washer, lock, 3/8-in, MS 35338-46." Explanation: To make the parts list correspond with Figure 3-12, No. 2.

* Reference to line number within the paragraph or subparagraph.

DA FORM 1 DEC 55 1598

EQUIPMENT PERFORMANCE REPORT

1 FROM: Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: STEGE-TE-S 3. DATE: 10 January 1969 4. EPR NO. L7-11
5 TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. 7. TEST TITLE: Initial Production Test of Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL: 36M-SPS3011G-T	9. SERIAL NO.: II-2283
10. QUANTITY: 2	11. LIFE PERIOD: 512 hours
12. MFR.: E. C. Schleyer Pump Co., Inc.	13. USA NO.: N/A

II. PART DATA

14. NOMENCLATURE / DESCRIPTION: Pump Seal	
15. FSN: None	16. MFR. PART NO.: A-0004-M36
17. DRAWING NO.: None	18. MFR.: 71724
19. QUANTITY: 1	20. NEXT ASSEMBLY: Intermediate Housing
21. STD. GOVT. SRP.: 5501	22. PART TEST LIFE: 512 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
x a. OPERATION	Normal pumping operations - fresh water	x a. DEFICIENCY	x a. REPLACED
b. MAINTENANCE		b. SHORTCOMING	b. REPAIRED
c.		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONNECTED
			e. REMOVED
			f. NONE

27. DATE AND HOUR OF INCIDENT: 1100, 9 Jan 69

IV. INCIDENT DESCRIPTION

29. DESCRIBE INCIDENT FULLY

a. At 512 test hours, water began spraying from the flywheel housing of the engine to the extent that the test item had to be stopped.

b. Disassembly of the pump revealed the seal (Schleyer part No. A004-M36) to be completely worn out and the spring broken, and the intermediate housing half filled with sand (see attached photographs).

c. The incident is classified as a deficiency because continued operation would cause damage to the test item and the efficiency of the pump was lowered below an acceptable level.

d. Cause of the incident is attributed to premature failure of the pump seal (A004-M36) following salt water (surf) operations.

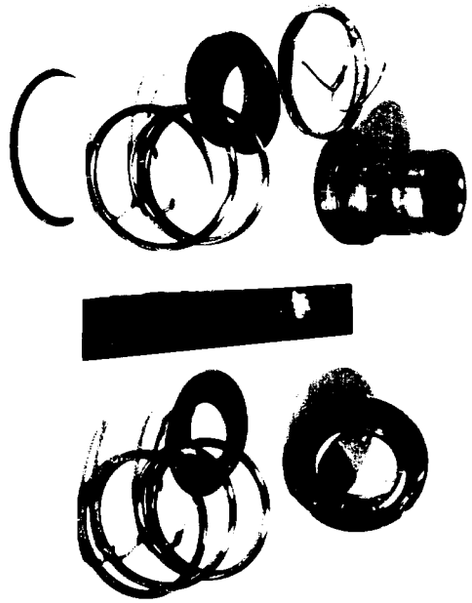
DEFICIENCIES AND SHORTCOMINGS AND SUBJECT TO RECLASSIFICATION

29. DEFECTIVE MATERIAL ~~SCRAPPED~~ RETAINED AND PHOTOGRAPHS ATTACHED.

30. NAME, TITLE & TEL EXT OF PREPARER Thomas M. Horgan 1LT/TC THOMAS M. HORGAN, 1LT, TC Test Officer, MHE/POL Equip Test Br Ext 1585/1697	31. FOR THE COMMANDER: Dennis B. Sullivan DENNIS B. SULLIVAN, MAJ, QMC Chief, MHE/POL Equipment Test Branch Service Test Division, Testing Directorate

STE Form 1025, 18 DEC 67 REPLACES AMSTE Form

USATECOM REGULATION 705-4



APPENDIX IV

EQUIPMENT PERFORMANCE REPORT

1. FROM	Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL:	STEGE-TE-S
		3. DATE:	15 January 1969
		4. EPR NO.	L7-12
5. TO	Commanding General U.S. Army Mobility Equipment Command ATTN: AMXME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. RDT&E PROJ NO. CONTRACT NO.	7-8-0961-01
		7. TEST TITLE	Initial Production Test of Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL	36M-SPS3011G-T	9. SERIAL NO.	H-2282
10. QUANTITY	2	11. LIFE PERIOD	110 service test hours
12. MFR.	E.C. Schleyer Pump Co., Inc.	13. USA NO.	N/A

II. PART DATA

14. NOMENCLATURE/DESCRIPTION	Volute Casing		
15. FSN	None	16. MFR. PART NO.	Schleyer A-001-M36
17. DRAWING NO.	None	18. MFR.	Schleyer
19. QUANTITY	1	20. NEXT ASSEMBLY	Intermediate housing
21. STD. GOVT. GRP.	5500	22. PART TEST LIFE	110 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	Below freezing temperatures	a. DEFICIENCY	x a. REPLACED
b. MAINTENANCE		b. SHORTCOMING	x b. REPAIRED
x c. Before-operation inspection		c. SUG. IMPROVEMENT	c. ADJUSTED
		x d. OTHER	d. DISCONNECTED
			e. REMOVED
27. DATE AND HOUR OF INCIDENT	13 January 1969, 0600 hours		f. NONE

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. Water left in the pump froze and cracked the volute casing #A-001-M36 approximately 3 inches on the outer surface.

b. During disassembly of the pump casing, the check valve was found to be damaged.

c. The volute casing is being repaired by Heli-Arc Welding and will be hydrostatically tested.

d. Test operations will be resumed using the volute casing of test item H 2322 as a replacement.

DEFICIENCIES AND SHORTCOMINGS ARE SUBJECT TO RECLASSIFICATION

29. DEFECTIVE MATERIAL SENT TO:

30. NAME, TITLE & TEL EXT OF PREPARER

THOMAS M. HORGAN, 1LT, TC
Test Officer, MHE/POL Equip Test Br
Ext 1585/1697

31. FOR THE COMMANDER:

Dennis B Sullivan

DENNIS F. SULLIVAN, MAJ, QMC
Chief, MHE/POL Equipment Test Branch
Service Test Division, Testing Directorate

DTE Form 1008, 10 DEC 67 REPLACES AMSTE Form 102.

USATECOM REGULATION 705-4

APPENDIX IV

EQUIPMENT PERFORMANCE REPORT

1. FROM	Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL:	STEGE-TE-S
		3. DATE:	15 January 1969
		4. EPR NO.	L7-13
5. TO	Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. RDT&E PROJ NO. CONTRACT NO.	7-8-0961-01
		7. TEST TITLE	Initial Production Test of Pump, Centrifugal, 600 GPM

I. MAJOR ITEM DATA

8. MODEL	36M-SPS3011G-T	9. SERIAL NO.	H-2283
10. QUANTITY	2	11. LIFE PERIOD	512 hours
12. MFR.	Schleyer Pump Co., Inc.	13. USA NO.	None

II. PART DATA

14. NOMENCLATURE/DESCRIPTION	Priming Plug		
15. FSN	None	16. MFR. PART NO.	A-909-M36
17. DRAWING NO.	None	18. MFR.	Schleyer
19. QUANTITY	1	20. NEXT ASSEMBLY	Volute casing
21. STD. GOVT. ORD.	5500	22. PART TEST LIFE	512 hours

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	Pump had just been removed from Maint Shop after quarterly maintenance had been accomplished.	a. EFFICIENCY	x a. REPLACED
b. MAINTENANCE		x b. SHORTCOMING	b. REPAIRED
x c. Initial inspection prior to operations		c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DISCONTINUED
			e. REMOVED
27. DATE AND HOUR OF INCIDENT	13 January 1969, 0800 hours		f. NONE

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. Prior to operation, the priming plug A-909-M36 was broken during removal to prime the pump. The entire wrench area of the plug twisted off, leaving an opening into the pump housing. The remaining portions (thread section) were removed by hacksawing and a screw extractor.

b. The incident is classified as a shortcoming because the pump could not be primed until the item was repaired.

c. Cause of the incident is attributed to using a ferrous metal plug in a nonferrous metal volute casing, resulting in seisure (unequal expansion and contraction of dissimilar metals and corrosion by electrolysis) of the plug to the volute casing, making removal difficult.

DEFICIENCIES AND SHORTCOMINGS ARE SUBJECT TO RECLASSIFICATION

29. DISPOSITIVE MATERIAL SENT TO:

30. NAME, TITLE & TEL EXT OF PREPARER

THOMAS M. HORGAN, 1LT, TC
Test Officer, MHE/POL Equip Test Br
Ext 1585/1697

31. FOR THE COMMANDER

DENNIS B. SULLIVAN, MAJ, QMC
Chief, MHE/POL Equipment Test Branch
Service Test Division, Testing Directorate

DD FORM 1498, 15 DEC 67 REPLACES AMSTE Form 1624.

APPENDIX IV

EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, VA 23801	2. OFFICE SYMBOL: STEGE-SS-E 3. DATE: 16 January 1969 4. EPR NO. L7-14
5. TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. 7. TEST TITLE Initial Production Test of Pump, Centrifugal, 600 GPM, Water

I. MAJOR ITEM DATA

8. NOMEN.	36M-SPS3011GT	9. SERIAL NO.	H 2283
10. QUANTITY	2	11. LIFE PERIOD	N/A
12. MFR.	E.C. Schleyer Pump Co. Inc.	13. USA NO.	N/A

II. PART DATA

14. NOMENCLATURE/DESCRIPTION	Operation, Maintenance & Overhaul Manual with Parts List.		
15. FSN	N/A	16. MFR. PART NO.	N/A
17. DRAWING NO.	N/A	18. MFR.	Schleyer Pump Co. Inc.
19. QUANTITY	1	20. NEXT ASSEMBLY	N/A
21. STD. GOVT. DOC.	N/A	22. PART TEST LIFE	N/A

III. INCIDENT DATA

23. OPERATING MODE	24. TEST OR MAINTENANCE	25. INCIDENT CLASS	26. OTHER ITEMS
a. OPERATION	Maintenance Shop	XX a. DEFICIENCY	a. [illegible]
b. MAINTENANCE		b. SHORTCOMING	b. [illegible]
X c. Simulated Maint		c. ENH. IMPROVEMENT	c. [illegible]
		d. OTHER	d. [illegible]
			e. [illegible]
27. DATE AND HOUR OF INCIDENT	15 January 1969	1330	XX f. [illegible] See block 28

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. Attached is a shop sketch of the actual wiring as found on the above test item. This wiring does not correspond to the schematic diagram, Fig 3-2, Page 16, of the maintenance manual furnished with the test item.

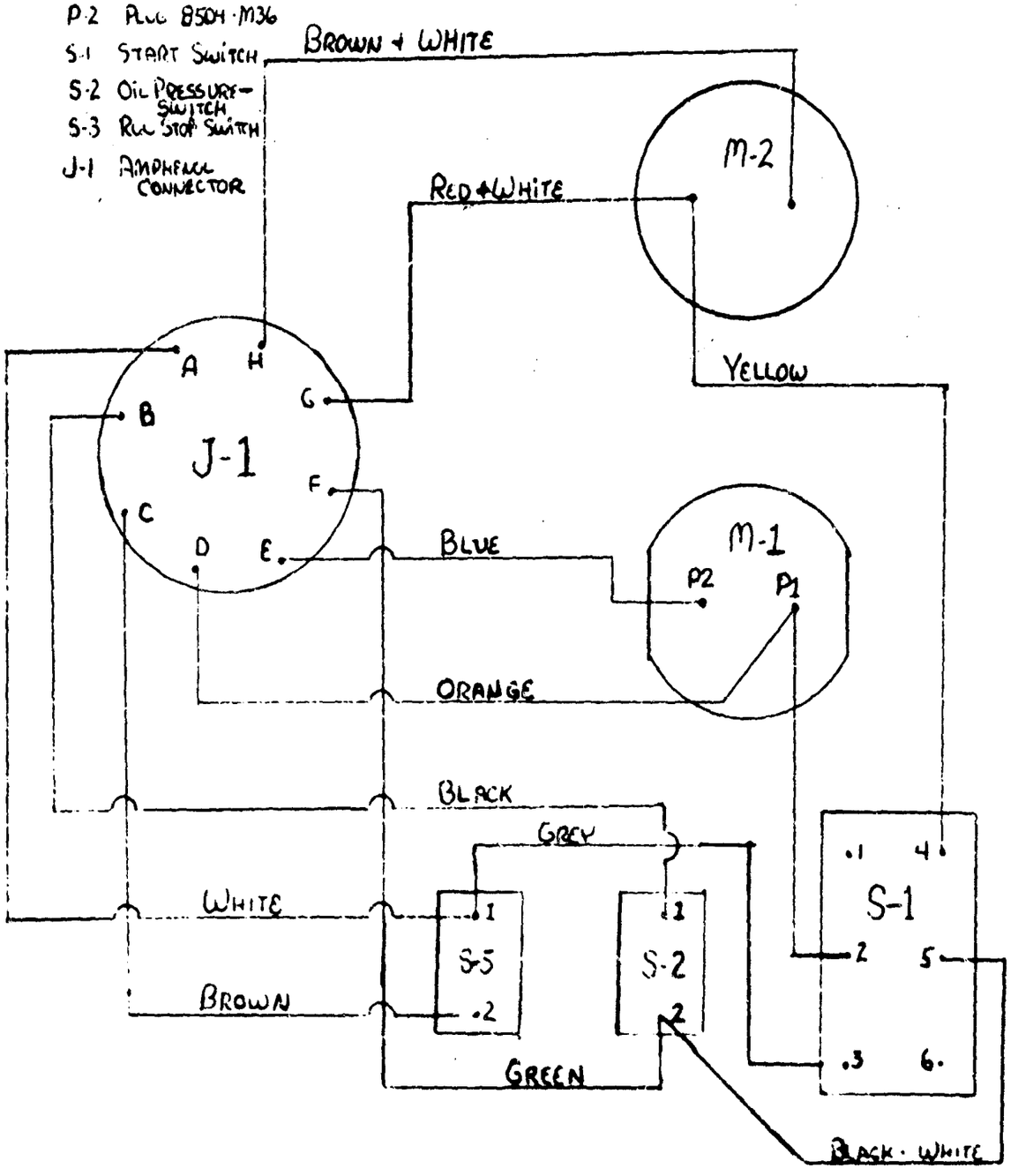
b. Incident is classified as a deficiency until corrective action is approved and the remainder of items under contract are verified for correct wiring. Accurate maintenance instructions must be provided that reflect correct wiring of test item prior to issue.

29. RESPONSIVE MATERIAL SENT TO:	
30. NAME, TITLE & DEV ELM OF PREPARER	31. FOR THE COMMANDER:
JOSEPH T. HARVEY, Equip Spec (Gen), MED ext 1006	ROBERT A. NULK, MAJ, ORD, C, MED, SSD

DTE FORM 1005, 10 DEC 67 REPLACES ABOVE FORM 1005, IV-24 USAYCOM REGULATION 700-4

REFERENCE DESIGNATIONS

M-1 PRESSURE INDICATOR
M-2 TACHOMETER
P-1 PLUG 8505-M36
P-2 PLUG 8504-M36
S-1 START SWITCH
S-2 OIL PRESSURE-SWITCH
S-3 RUN STOP SWITCH
J-1 AMPHENOL CONNECTOR



EQUIPMENT PERFORMANCE REPORT

1. FROM: Commanding Officer U.S. Army General Equipment Test Activity Fort Lee, Virginia 23801	2. OFFICE SYMBOL: SIEGE-SS-E 3. DATE: 24 January 1969 4. EPR NO. L7-15
5. TO: Commanding General U.S. Army Mobility Equipment Command ATTN: AMSME-QRT 4300 Goodfellow Boulevard St. Louis, Missouri 63120	6. USATECOM PROJ NO. 7-8-0961-01 RDT&E PROJ NO. CONTRACT NO. 7. TEST TITLE Initial Production Test of Pump, Centrifugal, 600 GPM, Water

I. MAJOR ITEM DATA

8. MODEL 36M-SPS3011G-T	9. SERIAL NO. H-2283
10. QUANTITY 3	11. LIFE PERIOD 600 hrs
12. MFR. E.C. Schleyer Pump Co. Inc.	13. USA NO. N/A

II. PART DATA

14. NOMENCLATURE/DESCRIPTION Operation, Maintenance & Overhaul Manual with Parts List	
15. FSN N/A	16. MFR. PART NO. N/A
17. DRAWING NO. N/A	18. MFR. N/A
19. QUANTITY N/A	20. NEXT ASSEMBLY N/A
21. STD. GOVT. SOP. N/A	22. PART TEST LIFE N/A

III. INCIDENT DATA

23. OBSERVED DURING	24. TEST ENVIRONMENT	25. INCIDENT CLASS	26. ACTION TAKEN
a. OPERATION	Maintenance Evaluation	a. DEFICIENCY	a. REPLACED
b. MAINTENANCE		b. SHORTCOMING	b. REPAIRED
X c. Manual Review		X c. SUG. IMPROVEMENT	c. ADJUSTED
		d. OTHER	d. DESIGN NOTED
			e. REMOVED
27. DATE AND HOUR OF INCIDENT N/A			X f. NONE See Item 28

IV. INCIDENT DESCRIPTION

28. DESCRIBE INCIDENT FULLY

a. Attached are recommended additions to the Operation, Maintenance & Overhaul Manual with Parts List for Schleyer 600 GPM Centrifugal Pump, Model [illegible]-SPS3011G-T.

b. Premature failure of the pump seal (Part No. A004-M[illegible], EPR [illegible]) attributed to insufficient maintenance instructions.

c. Adherence to recommended additions to the daily maintenance [illegible] will prolong the life of the seal, and permit replacement prior to actual failure of the seal and additional damage to the [illegible].

d. Reference EPR L7-10.

DEFICIENCIES AND SHORTCOMINGS ARE SUBJECT TO RECLASSIFICATION

29. DEFECTIVE MATERIAL SENT TO:

30. NAME, TITLE & TEL EXT OF PREPARER

JOSEPH T. HARVEY, Equip Spec (Gen), MED
ext 1096/4487

31. FOR THE COMMANDER:

ROBERT A. [illegible], Maj, QMC, Chief, MED, SSD

DA Form 1085, 18 DEC 67 REPLACES AMSTE Form 1021 — IV-26 — USATECOM REGULATION 705-4

APPENDIX IV

RECORD OF COMMENTS ON PUBLICATIONS	For use of this form, see AR 310-3; the proponent agency is Office of the Assistant Chief of Staff for Force Development.	DATE 23 January 1969

SUBJECT: Operation, Maintenance & Overhaul Manual with Parts List, Schleyer Model No. 36M-SPS3011G-T, Centrifugal Pump, Gas Eng Driven, USATECOM Project No. 7-8-0961-01

REVISION NOTES FROM

ITEM NO.	PAGE	PARAGRAPH	LINE *	COMMENT (Exact wording of recommended change must be given.)
1	7	2-7-A	9	Add after "debris": "and abrasive liquids." Explanation: Disassembly of the test item revealed extensive wear to the internal components indicating a need for additional caution and filterization during surf operations.
2	7	2-7-A	9	Add after "pump": "(Provide a settling bed during surf operations to minimize entrance of sand into the pump)" Explanation: Same as item 1, above.
3	13	Fig 3-1	9	Add: "Item 9. Remove drain plug (Item 33, Fig 4-1) from the intermediate housing and flush entire pump with fresh water. A daily increase in the amount of drainage from the intermediate housing indicates a defective seal (A004-M36) and the seal must be replaced." Explanation: During service testing, sand accumulated in the intermediate housing (EPR L7-11) and caused premature failure of the pump seal, and the intermediate housing assembly. Daily draining and early recognition and replacement of a defective seal will prevent mission stoppage and additional damage.

* Reference to line number within the paragraph or illustration

DA FORM 1598